

# Stag-40H & Stag-43H Production and Water Injection Wells Environment Plan: Summary November 2011

This summary of the Stag-40H & 43H Environment Plan (EP) has been submitted to comply with Regulation 11(7)(8) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

# Introduction

Apache proposes to drill two wells targeting the Stag oilfield in permit area WA-15-L, in Commonwealth waters. Stag-40H is a water injection well drilled 3 km to the West of the Stag Platform. Stag-43H will be drilled from the Stag Platform as a deviated production well.

Drilling of the Stag-40H is proposed to commence on 24 November 2011 using the Ensco 104 jackup drill rig and is expected to take approximately 24 days to complete. Drilling of Stag-43H, also using the Ensco 104, will commence immediately after Stag-40H on the 18 December for 35 days (weather permitting).

Apache's generic Environment Plan (EP) for its drilling programme on the North West Shelf (NWS) in State and Commonwealth waters will be used to manage the well (EA-00-RI-164). A bridging document to this EP, for Stag-40H & 43H was approved by the DMP on the 21 November 2011, in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment)* Regulations 2009.

# **Project Description**

The location of the Stag-40H & 43 wells (**Figure 1**) is approximately 60 km west of the nearest mainland point (Burrup Peninsula), 35 km northwest of the nearest island in the Dampier Archipelago, 85 km northeast from Varanus Island, and 63 km east of the nearest Montebello Islands. A summary of the well surface hole locations, water depths, duration of drilling and total depth of wells is provided in **Table 1**. Further detail is provided in the Stag-40H & 43 EP bridging document.

	Table 1: Well Det	ails
Parameter	Stag-40H	Stag-43H
Surface hole location (GDA 94)	20° 17' 24.112" S, 116° 14' 45.905" E 20.290031° S 116.246085° E	Slot K: 20° 17' 23.851" S, 116° 16' 31.094" E 20.290219° S 116.275275° E
Type of well	Directional Horizontal Water Injector	Producer
Approximate water depth (m)	48 m AHD	49 m AHD
Approximate length of drilling period (days)	24 days	36 days
Proposed total depth of well	2,458 m MDRT	3,205 m MDRT

# Stag-40H

Drilling will be undertaken from the Ensco 104 jack-up rig (**Attachment 1**). The Stag-40H drilling operation will be carried out conventionally by drilling a 914 mm (36") hole to 110 m measured depth rotary table (MDRT) and running and cementing a 762 mm (30") casing. A 406 mm (16") hole is then drilled directionally to 340 m MDRT and the 340 mm (13 3/8") casing string is run and cemented. The mud system for drilling the tophole section will be a seawater and prehydrated gel (SW/PHG). The hole will be displaced to a prehydrated polymer system (KCl/Klastop/CaCO<sub>3</sub>) to keep the hole open

while running casing. Following this operation, the Blow-Out Preventors (BOPs) will be nippled up and a full BOP pressure test conducted.

A 311 mm (12  $\frac{1}{4}$ ") will then be directionally run to 1,425 m MDRT, the well will be displaced to an inhibited WBM and the 244 mm (9 5/8") casing will be run to Total Depth (TD) and cemented in place. A 216 mm (8  $\frac{1}{2}$ ") hole will be drilled to TD of 2,548 m MDRT after which the lower and upper completions are run. The subsea X-tree will then be installed before the rig moves off location. As only a logging while drilling (LWD) quad-combo evaluation is required no wireline logs are planned.

# Stag-43H

Drilling will be undertaken from the Ensco 104 jack-up rig (**Attachment 1**) from the existing Stag Platform, using existing slot K on the subsea well template.

After installation of the drill rig over the Stag platform, the existing slot will be reclaimed. A BOP and diverter will be installed and a full BOP test will be performed. Either a 762 mm (30") mudline whipstock and 473 mm (18 5/8") scab liner will be used prior to drilling the 406 mm hole to 340 m MDRT to start a new hole or a sidetrack will be done below the existing conductor prior to drilling the 406 mm hole with seawater and prehydrated gel (SW/PHG). A 340 mm casing will be installed and cemented in place and a wellhead spool and BOP will be installed onto the casing and pressure tested. Next the 311 mm hole will be drilled using WBM to 1,600 m, after which a 244 mm diameter casing will be installed and cemented in place.

Continuing to use the WBM, a 216 mm diameter hole will be drilled to 2,551 m MDRT and a 178 mm liner will be installed and cemented in place. Finally, a 152 mm hole will be drilled to 3,205 m MDRT. Following the installation of the lower and upper completions, the well will be handed to Operations.

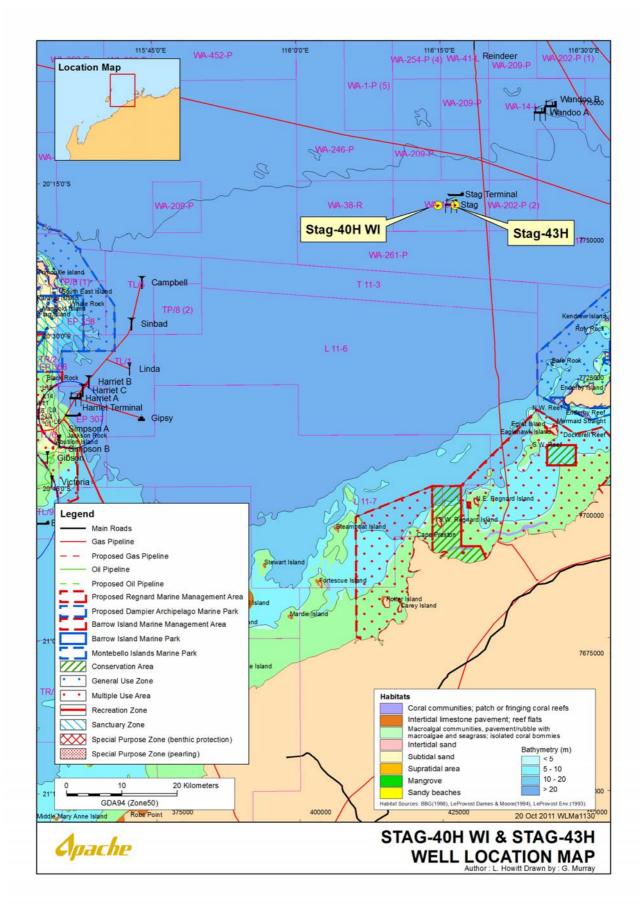


Figure 1: Location of the proposed wells: Stag-40H & 43H.

All work on the wells will be undertaken in accordance with the regulations and guidelines set out in the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGSA) and the associated OPGGS(E) Regulations 2009 and Petroleum (Submerged Lands) Act Schedule of Specific Requirements as to Offshore Petroleum Exploration and Production (2005).

### **Receiving Environment**

#### **Physical Environment**

A summary of the climatic conditions for the Northwest Shelf (NWS) region is provided below. The NWS lies in the arid tropics region of Australia, which experiences high summer temperatures and periodic cyclones (with associated rainfall). Rainfall is generally low, with evaporation exceeding rainfall. Mean ocean temperatures range from a minimum of 11°C in winter to a maximum of 37°C in summer. Shelf waters are usually thermally stratified at a depth of about 20 m.

In general, wind patterns are monsoonal with a marked seasonal pattern. From October to March, prevailing non-storm winds are from the south-west, west and north-west at an average speed of less than 10 knots. From June to August, winds are generally lighter and more variable in direction than in spring and summer.

Non-storm winds prevail from north-east through to south-east at average speeds of 5-6 knots. Transitional wind periods, during which either pattern may predominate, can be experienced in April, May and September each year.

#### **Biological Environment**

The key environmental considerations associated with the Stag-40H and Stag-43H programme (**Table 2**) and their potential for and likelihood of impact on the marine fauna is outlined below.

A search of the EPBC Act Protected Matters Search Tool in October 2011 identified a total of 10 threatened species listed under the EPBC Act database as threatened marine species that may occur within the proposed drilling area, with 14 species listed as migratory (nine of these being the same as the threatened species).

All 14 migratory species, with the exception of the humpback whale (*Megaptera novaeangliae*), are widely distributed and/or oceanic species and would most likely occur as vagrant transients through the area. The drilling programme coincides with the end of the peak humpback whale southern migration period and the peak nesting and breeding periods for marine turtles and seabirds (**Table 2**).

#### Cetaceans

A number of Cetacean (whale and dolphin) species occur in the region. The most commonly sighted whale is the humpback whale, which migrates between the Antarctic waters and the Kimberly region of Western Australia. The peak of the northerly migration occurs around late July on the North West Shelf, while the southerly return migration peaks around September – October. The northern migratory whale route, where most whales are observed, occurs in deeper waters (> 200 metres), passing to the west and north of Serrurier Island, westward of Barrow Island and north of the Montebello Islands (Woodside, 2002). Peak southerly migration occurs from September onwards as whales migrate southward and in shallower waters. The Environment Protection and Biodiversity Conservation Regulations 2000, Part 8 "Interacting with cetaceans and whale watching" shall be applied during rig move and for support vessels. Consequently, no significant impacts to humpback whales are expected.

#### Whale Sharks

Whale sharks are occasionally observed from Apache's offshore oil and gas facilities on the NWS (Harriet Alpha and Stag platforms). The proposed activity is outside the whale shark aggregation period, while any interactions can be adequately managed through implementation of the DEC Code

of Conduct for whale shark interactions, as well DMP (2007) guideline on Minimising Acoustic Disturbance to Marine Fauna.

#### Reptiles

Four species of marine turtle nest on sandy shore and island sites in the NSW region. These are the green turtle (*Chelonia mydas*), the flatback turtle (*Natator depressus*), the hawksbill turtle (*Eretmochelys imbricata*), and the loggerhead turtle (*Caretta caretta*). The leatherback turtle (*Dermochelys coriacia*) may also visit the open waters of the region. These 5 species are on the National List of Threatened Species as either endangered or vulnerable under the EPBC Act.

The nearest turtle nesting sites are located about 35 km to the east (Dampier Archipelago), and at least 60 km to the south-west (Barrow, Montebello and Lowendal Islands) from the proposed Stag well sites. The peak turtle nesting and hatching period broadly occurs from September to March, coinciding with the proposed drilling period (**Table 2**). Considering this, impacts from the proposed drilling activities on turtle populations is considered to be minimal.

All sea snakes are listed marine species under the EPBC Act. Sea snakes are essentially tropical in distribution, and habitats reflect influences of factors such as water depth, nature of seabed, turbidity and season (Heatwole & Cogger 1993). The Short-nosed sea snake is listed as Critically Endangered under the EPBC Act and may occur within the area. However, the majority of specimens have been collected from Ashmore and Hibernia Reefs (Minton & Heatwole, 1975).

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC
Hawksbill												
turtle nesting												
Flatback turtle												
nesting									_			
Green turtle												
nesting												
Loggerhead												
turtle nesting							1	_				
Whale												
migration							North		So	uth		
Ingration												
				Main ag	aareaa	ation						
Whale-sharks					eriod							
				P	onou							
Seabird												
nesting												
(terns and												
shearwaters)												
Proposed												
drilling activity												

 Table 2:
 North West Shelf biological resources seasons and breeding cycles

 Key

 Image: Provide the second seco

Peak activity, presence reliable and predictable
Low level of abundance/activity/presence
Activity not occurring within the area
Proposed drilling programme

There is no contingency for vertical seismic profiling (VSP) as part of this drilling activity. However, in the event that it should be required Apache would inform DMP prior to carrying out. Should VSP be required, then this will be of short duration (generally less than 8 hours per well) and thus this

potential source of underwater noise will be limited. To mitigate any potential impacts on humpback whales or whale sharks from VSP, DMP's (formerly DoIR) "Guidelines on Minimising Acoustic Disturbance to Marine Fauna" (2007) will be followed when undertaking VSP.

In addition, the Environment Protection and Biodiversity Conservation Regulations 2000, Part 8 "Interacting with cetaceans and whale watching" shall be applied. Consequently, no significant impacts to humpback whales are expected.

#### Socio-Economic Environment

Dampier and Karratha are the main service and population centres for this region. Local people seeking aquatic recreation such as boating, diving and fishing use the coast and islands of the Pilbara. The open waters of the Commonwealth permit areas do not support significant recreational or tourism activity. Recreational fishing tends to be active within State waters in closer proximity to population centres associated with high number of local visitors and tourism. Commercial fisheries are active along the Pilbara coast; however fishing effort in the open Commonwealth waters is low, with operators favouring the inshore areas.

Further information on recreational and commercial activities that fall under the North Coast Bioregion is addressed in the in the Stag Operations EP (EA-62-RI-023) and NWS Generic Drilling EP (EA-00-RI-164).

# Major Environmental Hazards and Controls

The potential environmental impacts resulting from offshore drilling on the NWS are outlined in detail in Apache's Generic Drilling Programme EP (EA-00-RI-164). **Table 3** summarises the guidelines and environmental commitments for the Stag-40H & 43H drilling programme.

# **Environmental Management**

Extensive environmental management guidelines are prepared for each Apache-drilled well. Apache management documents used to guide the implementation of well-specific environmental management procedures are listed below:

- Environmental Management Policy (February 2010).
- NWS Generic Drilling EP 2007 2011 (EA-00-RI-164)
- Environmental Requirements for Offshore Marine Vessels (AE-91-IQ-202)
- Refuelling and Chemical Transfer Management Procedure (AE-91-IQ-098)
- OSCP Volume 1 Operations (NWS) (AE-OO-EF-008/1).
- OSCP Volume 2 Resource Atlas (NWS) (AE-OO-EF-008/2).
- Hazard Reporting, Incident Notification and Investigation Procedure (AE-91-IF-002).
- Quarantine Procedure (AE-91-IQ-189).
- Waste Management Plan (EA-60-RI-167).

# Consultation

Stakeholders of relevance to the drilling of the Stag wells are limited to fisheries organisations with interests in Commonwealth waters. These organisations include:

- Australian Fisheries Management Authority (AFMA)
- Commonwealth Fisheries Association (CFA)
- Northern fishing Companies Association (NFCA)
- Western Australian Fishing Industry Council (WAFIC)
- Department of Fisheries WA (DoF)

The above stakeholders were notified via email of the proposed drilling activity on the 26<sup>th</sup> October 2011.

AFMA provided comment on 28/10/11 that historical AFMA logbook data for 2008-2010 indicated that no vessels reported operating in the proposed area of the well. The Department of Fisheries WA provided comment on 07/11/11 and noted the fisheries with jurisdiction to work within the area. No other comments were received. Apache will undertake ongoing consultation with relevant stakeholders where necessary.

# Table 3:Summary of Apache Environmental Guidelines and Drilling Rig Environmental<br/>Commitments for Stag-40H & 43H

Activity	Requirement			
Disposal of drilling	WBM cuttings discharge to seabed.			
fluid and drilling cuttings	<ul> <li>Record volume of drilling cuttings and fluid disposed into the ocean on environmental spreadsheet. Send results to the Apache Environmental Department at the end of the well.</li> </ul>			
Pipe Dope	Use pipe dope that has lowest concentration of heavy metals and hydrocarbons but still meets safety and performance criteria.			
	<ul> <li>Record volume of pipe dope used on location on environmental spreadsheet. Send results to the Apache Environmental Department at the end of the well.</li> </ul>			
Liquid Discharges	Discharge excess water from the water maker to sea.			
	<ul> <li>Under routine operating conditions, discharge treated sewage, grey water and main deck drainage at sea level.</li> </ul>			
	<ul> <li>Discharge cooling water at barge of hull of drilling rig level to allow for sufficient cooling and oxygenation.</li> </ul>			
Incident Reporting	Use the Apache incident reporting system to report incidents to DMP within 2 hours (OPGGS(E) Regulations; 26A).			
	<ul> <li>Recordable incidents to be reported to DMP at the end of each month (OPGGS(E) Regulations; 26B).</li> </ul>			
Waste Oil	Drum waste oil and grease and return to mainland for recycling.			
Management	<ul> <li>Record volume of waste oil taken off rig and forward results to the Apache Environmental Department at the end of the well.</li> </ul>			

(Stag-40H & 43H drilled under NWS 2007-2011 Generic Drilling EP: Doc EA-00-RI-164)

Activity	Requirement
Deck drainage,	Maintain good housekeeping practices.
chemical storage and management	<ul> <li>Store chemicals in bunded areas away from open drains and chemical containers are to be intact.</li> </ul>
	<ul> <li>Use drip trays under all machinery and fuel points and valves.</li> </ul>
	<ul> <li>In the event of a spill, take all actions to control the spill and divert deck drainage to on board containment tanks for treatment through the oil in water separator.</li> </ul>
	<ul> <li>Ensure absorbent material is on board to use in soaking up chemical or oil spills on deck.</li> </ul>
	<ul> <li>Maintain oil water separators regularly to ensure 15 mg/L oil concentration alarm is functional.</li> </ul>
	<ul> <li>Report all releases of oil in water of &gt; 30 mg/L (over a 24 hour period) to Apache Perth office.</li> </ul>
	<ul> <li>Report all spills &gt; 80 L to DMP within 2 hours either directly by contacting the DMP Duty Inspector on 0419 960 621 or via the Apache Perth office.</li> </ul>
	<ul> <li>Report all spills (including &lt; 80 L) through Apache incident reporting system.</li> </ul>
	<ul> <li>All spills &lt; 80 L are Recordable Incidents under the Offshore Petroleum &amp; Greenhouse Gas Storage (Environment) Regulations 2009 (26B) and must be reported to DMP no later than 15 days after the end of the calendar month via the Apache Perth office.</li> </ul>
Spillage of diesel fuel	Follow Apache refuelling procedure (AE-91-IQ-098).
or oil	<ul> <li>Carry out diesel refuelling during daylight hours only, weather permitting.</li> </ul>
	<ul> <li>In event of a spill take all actions to control it.</li> </ul>
	<ul> <li>Do not use dispersant without Australian Marine Safety Authority (AMSA) approval.</li> </ul>
	<ul> <li>Report all releases of oil in water of &gt; 30 mg/L (over a 24 hour period) to Apache Perth office.</li> </ul>
	<ul> <li>Report all spills &gt; 80 L to DMP within 2 hours either directly by contacting the DMP Duty Inspector on 0419 960 621 or via the Apache Perth office.</li> </ul>
	<ul> <li>Report all spills (including &lt; 80 L) through Apache incident reporting system.</li> </ul>
	<ul> <li>All spills &lt; 80 L are Recordable Incidents under the Offshore Petroleum &amp; Greenhouse Gas Storage (Environment) Regulations 2009 (26B) and must be reported to DMP no later than 15 days after the end of the calendar month via the Apache Perth office.</li> </ul>
	<ul> <li>Implement Apache's Oil Spill Contingency Plan (AE-00- EF-008) if required.</li> </ul>
Discharge of combustion products from engines	<ul> <li>Include inspections and tuning of engines and equipment on a regular maintenance schedule.</li> </ul>

Activity	Requirement
Solid waste management	Macerate all food scraps prior to ocean disposal (rig is 35 km from nearest land).
Food scraps	<ul> <li>Do not dispose of debris, garbage or litter into the sea (skips need covers to prevent wind blown rubbish – especially plastics and cups).</li> </ul>
<ul><li>Garbage</li><li>Litter</li></ul>	<ul> <li>Segregate industrial waste (scrap metals / drums etc) wherever possible for appropriate disposal onshore.</li> </ul>
Scrap metal and	Do not use polystyrene cups.
wood etc	Reduce, reuse and recycle waste wherever practicable.
	<ul> <li>Record the volume and type of waste taken off rig and forward to the Apache Environmental Department at the end of the well.</li> </ul>
	Undertake an ROV survey to check that no rubbish is left on seabed.     Remove any debris if found.
Sewage discharge	Treat sewage to secondary level prior to discharge through the sewage plant (aerates, macerates and chlorinates). This unit meets MARPOL 1973/78 requirements.
	<ul> <li>Maintain the sewage treatment plant in order to ensure effective treatment.</li> </ul>
Light Overspill	Minimise use of non-essential lighting, while maintaining safety standards on the drill rig and support vessel.
Noise	Minimise noise emissions when drilling near noise-sensitive environments.
	<ul> <li>Should VSP be required, then DMP's "Guidelines on Minimising Acoustic Disturbance to Marine Fauna" (2007) will be followed, to mitigate any potential impacts on humpback whales or whale sharks from vertical seismic profiling (VSP). Using the DMP guidelines, the following measures will be undertaken on the rig at the commencement of the VSP:</li> </ul>
	<ul> <li>Not commencing VSP unless whales/whale sharks are a minimum distance of 3 km from the rig;</li> </ul>
	<ul> <li>Soft-start over a 20 minute period;</li> </ul>
	<ul> <li>Rig crew being alert for whales/whale sharks during VSP, with a dedicated whale-watcher on post if a whale or whale shark is sighted with 3-5 km of the rig; and</li> </ul>
	<ul> <li>Shut down of VSP if whales or whale sharks are observed within 1 km of the rig.</li> </ul>
Fishing	No fishing is permitted from the drill rig whilst it is on location.
Anchoring & Disturbance to the seabed	Side scan sonar survey results used to select a rig approach and drill site location that avoids sensitive seabed features. No sensitive seabed features in immediate vicinity of the wells.
	<ul> <li>No workboats are to anchor in areas where coral reefs occur; a designated area for mooring will be allocated. No sensitive seabed features in immediate vicinity of the wells.</li> </ul>

Activity	Requirement
Operational Environmental Awareness	<ul> <li>Through inductions and educational material present on the rig, all personnel are familiar with the environmental requirements of the EP to ensure these guidelines and procedures are being followed.</li> </ul>
	• Ensure all personnel sign off on the rig register book confirming their induction.
Large Animal Observations	The DEC Code of Conduct for whale shark interactions shall be adhered to.
	<ul> <li>Fill in Marine Fauna Sighting Datasheet and send to the Apache Environmental Department at the completion of the drilling program.</li> </ul>
	• Peak Humpback whale southern migration will likely have completed at the beginning of drilling at Stag while the northern migration generally occurs in deeper waters (>200m). Any interactions will be managed through implementation of the EPBC regulations Part 8, as well as DMP (2007) guideline on Minimising Acoustic Disturbance to Marine Fauna (during VSP).

# **Perth Office Commitments**

Activity	Requirement
Prior to drilling	<ul> <li>NWS generic drilling EP 2007-2011 (EA-00-RI-164) is available to all personnel involved in drilling programme.</li> <li>Ongoing consultations are part of each drilling campaign. In preparing the Generic NWS Drilling Programme EP, Apache consulted with numerous stakeholder representatives. Key stakeholders representatives such as fisheries will be notified in writing of the Stag-40H &amp; 43H campaign prior to commencement of drilling.</li> </ul>
Discharge of combustion products from engines	<ul> <li>Report greenhouse gas emissions data to Commonwealth Government annually.</li> </ul>
Environmental Audit	<ul> <li>Audit drilling rigs every six months whilst under contract to Apache (1st audit to be scheduled at start of contract).</li> <li>Review electronic waste and chemical log received from rig at the completion of the drilling programme.</li> </ul>

# **Further Details**

For further information about the Stag-40H & & 43H drilling programme, please contact:

Justin Chidlow Environmental Scientist Apache Energy Ltd, PO Box 477, West Perth, WA 6872 Phone: 08-6218 7205 Email: justin.chidlow@apachecorp.com

#### Attachment 1



# **ENSCO 104**

#### **GENERAL INFORMATION**

Flag Liberian Previous Name(s) Chiles Discovery Year Built 2002 Builder Keppel FELS, Singapore Upgrade \_ Design KFELS MOD V B Class Classification A. B. S. A-1 self elevating mobile offshore drilling unit

#### MAIN DIMENSIONS

Length 225' Breadth 208' Depth 25' Legs 3 x triangular 517' Leg Spacing Longitudinal leg center 129', transverse leg center 142' Cantilever Maximum 70' from stern to rotary centerline; maximum 15' rotary displacement to either side of longitudinal centerline; 50' x 30' live drilling area aft of hull Spud Cans 47.2' diameter x 19' high Deck Area Main deck 6,100 sq. ft. Helideck S-61; 75' diameter; 9.3 ton

#### DRAFT AND DISPLACEMENT

Transit Draft 16' Transit Displacement 31,351 kips

#### MACHINERY

Main Power 5 x Cat 3516-B diesel engine, each driving 1x Cat 2150 KVA generator; 9,275 HP total Power Distribution 5 x Ross Hill control 600 V, 2,200 amps SCR system Emergency Power 1 x Cat 3516-B diesel engine driving 1x Cat 2150 KVA generator

# **OPERATING PARAMETERS**

Water Depth 350' - 400' Maximum Drilling Depth 30,000' Leg Penetration 25' Air Gap 120' Transit Speed 4.0 KPH Survival Conditions At 250' water depth: wind: 100knots; waves: 40'; period 15.0 sec Criteria Design 70 knots; waves: 42'; -10 C

#### **DRILLING EQUIPMENT**

Derrick DRECO 170' x 35' x 32'; rated 1,500,000 lb Drawworks National 1625 UDBE Rotary National D-495 (49 1/2') Top Drive NOV TDS-8 Travelling 650 ton rating Handling Varco ST-80 Roughneck Cementing Haliburton HCS Advantage 15k Mud Pumps 3 x National 14-P-220; 7,500 psi mud system Drill Pipe 5 1/2"-S-135 range 2, 5-1/2"HWDP range 2, 3 1/2" S-135 range 2, 3 1/2" HWDP range 2 Drill Collars 9 1/2", 8 1/4", 6 1/2", and 4 3/4"

#### **Ensco 104 Details**

Ensco Asia & Pacific Rim 300 Beach Road, #10-01 The Concourse Singapore 199555 Phone: + 65-66228900 Fax: + 65-66228909 E-mail: marketing.ap@enscoplc.com www.enscoplc.com



#### HOISTING EQUIPMENT

Cranage 3 x Dreco DNS-48, 50 ton at 30' radius, 120' boom

#### CAPACITIES

Variable Deck Load 8,025 kips (drilling) Cantilever Load 1,675 kips Total Drilling Load 9,700 kips w/ Rack Chocks engaged Tubulars in Pipe Rack 25,000 Liquid Mud 3,516 bbls Bulk Mud/Cement 11,100 cu. ft. Sacks 5,000 sacks Drillwater 15,082 bbls Potable Water 2,053 bbls Brine Storage 2,229 bbls Base Oil Capacity 1,298 bbls Fuel Oil 2,584 bbls Watermaker Specific Equipment, 14,000 GPD Others Skimmer-209 Bbls: Dirty Oil 51 Bbls

#### WELL CONTROL SYSTEMS

BOP Cameron "U" 18 3/4" 10,000 psi 4 ram BOP stack; Shaffer spherical blowout preventer 5k 18-3/4" 5,000 psi annular (15,000 piping) BOP Handling J.D Neuhaus model UH-100, 200 ton Control System ABB TX392-15BT3X Diverter Shaffer 30" 1,000 psi TV System CCTV for Monkey Board, Stabbing Board, and Flo-Line Choke and Kill 3 1/16" x 15,000 psi Cameron

#### MOORING

Winches 4 x Marathon LeTourneau / W1500 Wire 1 1/2" x 2,000' anchor wire Anchors 4 x Delta Flippers @ 11,000 lbs. each

HELIDECK 75' Diameter Rated 20,400 Pounds JACKING AND SKIDDING SYSTEM Jacking Unit: Keppel Fels – OTD Model 1000FV; Skid Unit: Keppel Fels – OTD Model SS200-FL

ACCOMMODATION 110 berths, 30 x 2 man rooms, 12 x 4 man rooms, 2 x private room

#### **ADDITIONAL DATA**

4 x Brandt VSM-300 Shale Shaker, 1 x Brandt LCM-3DCMC Mud Cleaner; 1 x Gumbo Scalper, 2 x 25 ton Conductor Tensioning System, 2 x 100 ton BOP Tensioning System: Cameron

#### CANTILEVER CAPACITY (kips)

	Reach	+15'	0	-15'
Allow Loads	70'	519	1321	392
Max combined load & setback	46'	1675	1675	1543